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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,673	03/15/2002	Willy Marrecau	016782-0244	7702

22428 7590 08/22/2003

FOLEY AND LARDNER  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER
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TRAN, DIEM T

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 08/22/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/049,673

Applicant(s)

MARRECAU, WILLY

Examiner

Diem Tran

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 6/11/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-8,10,12 and 14-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8,10,12 and 14-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This office action is in response to the amendment filed on 6/11/03. In this amendment, claims 1, 2, 4-8, 10, 12 14, 15 have been amended, claims 3, 9, 11, 13 have been canceled and claims 16-24 have been added.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

***Claims 1, 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Lundquist (US Patent 6,152,978).***

Regarding claims 1, 16, Lundquist discloses a method of regeneration a filter of diesel exhaust particulate filter system, said method comprising as steps:

providing a porous membrane in the form of a stainless steel fiber web (see col. 7, lines 61-67, col. 8, lines 1-7, col. 11, lines 33+);

using said membrane as filter during a filtration period (see col. 3, lines 10-16, 37-42); and using said membrane as a surface combustion burner membrane during a regeneration period (see col. 7, lines 24+).

***Claims 20-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirota et al. (US Patent 5,974,791).***

Regarding claims 20-22, Hirota discloses an exhaust particulate filter system, comprising:

- a first fiber web filter (10a) for filtering an exhaust flow;
- a second fiber web filter (10b) for filtering said exhaust flow (see col. 4, lines 44-46); a fuel supply (12) coupled to said first and second fiber web filter;
- a valve unit (9) configured to direct said exhaust flow to said first or second fiber web filter when directing fuel to said second or first fiber web filter (see col. 9, lines 40-43).

Regarding claim 23, Hirota further discloses that said exhaust flow comprises a diesel exhaust flow (see col. 5, lines 10-11).

Regarding claim 24, Hirota further discloses that said fuel supply comprises a diesel fuel supply (see col. 5, lines 10-15).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claims 2, 10, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota et al. (US Patent 5,974,791) in view of Lundquist (US Patent 6,152,978)***

Regarding claim 2, Hirota discloses a method of regeneration a diesel exhaust particulate filter system, comprising:

providing at least two particulate filters (10a, 10b) (see Figure 1);

using at least one of said filters as a filter during a filtration period; and

using at least one of remaining filters as a surface combustion burner membrane during a regeneration period following said filtration period which overlaps with said filtration period (see col. 9, lines 40-43); however, fails to disclose said filters comprising porous membranes in the form of a stainless steel fiber web. Lundquist teaches that it is conventional in the art, to utilize the particulate filter being comprised porous membrane in the form of a stainless steel fiber web (see col. 7, lines 60-67, col. 8, lines 1-7, col. 11, lines 33+);

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the particulate filter being comprised porous membranes in the form of a stainless steel fiber web as taught by Lundquist in the Hirota method since the use thereof would have improved the efficiency of the filter for removing the particulate matters in the exhaust gas.

Regarding claim 10, Hirota further discloses the step of providing fuel to said membrane during the regeneration period (see col. 9, lines 20-29).

Regarding claim 17, Lundquist further teaches that said stainless steel fiber web is completely metallic.

***Claims 4-7, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundquist (US Patent 6,152,978) as applied to claim 1 above, in view of Sato et al. (US Patent 4,535,588).***

Regarding claims 4, 5, Lundquist discloses all the claimed limitations as discussed in claim 1 above, however, fails to disclose step of providing fuel to said membrane during the regeneration period. Sato teaches that it is conventional in the art, to provide fuel to the filter during regeneration period (see col. 5, lines 27-44).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have supplied fuel to the filter during regeneration period as taught by Sato in the Lundquist method for more efficiently providing heat to burn the particulates collected in the trap and to improve the regeneration of the particulate trap.

Regarding claim 6, Lundquist discloses all the claimed limitations as discussed in claim 1 above, however, fails to disclose the step of monitoring a pressure across said membrane during the filtration period. Sato teaches that it is conventional in the art, to monitor the pressure across said membrane during filtration period (see col. 5, lines 20-39).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have monitored the pressure across said membrane as taught by Sato in the Lundquist method for more efficiently determining the timing for finishing the regeneration of the particulate trap.

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Regarding claim 7, Sato further teaches the step of generating a control signal to regenerate said membrane, once the pressure across said membrane exceeds a predetermined level (see col. 5, lines 31-39).

Regarding claims 14, 15, Sato further teaches the step of monitoring the pressure across said membrane during the filtration period (see col. 5, lines 20-39).

***Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lundquist (US Patent 6,152,978) in view of Sato et al. (US Patent 4,535,588) as applied to claim 4 above, and further in view of Shinzawa et al. (US Patent 4,567,725).***

The modified Lundquist method discloses all the claimed limitations as discussed in claim 4 above, however, fails to disclose that the amount of fuel provided is reduced after initiation of a flame at said filter during said regeneration period. Shinzawa teaches that it is conventional in the art, to reduce the amount of fuel provided after initiation of a flame at said filter during said regeneration period (see col. 19, lines 7-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have reduced the amount of fuel as taught by Shinzawa in the modified Lundquist method for decreasing the amount of fuel consumption during the regeneration process.

***Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota et al. (US Patent 5,974,791) in view of Lundquist as applied to claim 2 above, in view of Shinzawa et al. (US Patent 4,567,725).***

Hirota discloses all the claimed limitations as discussed in claim 2 above, however, fails to disclose the step of monitoring a pressure across said membrane during the filtration period. Sato teaches that it is conventional in the art, to monitor the pressure across said membrane during filtration period (see col. 5, lines 20-39).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have monitored the pressure across said membrane as taught by Sato in the Hirota method for more efficiently determining the timing for finishing the regeneration of the particulate trap.

***Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lundquist (US Patent 6,152,978) as applied to claim 1 above, in view of design choice.***

Lundquist further discloses that diameter of said fiber web is about 40 micrometers (see col. 12, lines 32-38); however, fails to disclose said fiber web having fiber diameter of about 22 micrometers.

Regarding to the diameter of the fiber web of about 22 micrometers would have been an obvious matter of design choice well within the level of ordinary skill in the art, depending on variables such as material of the filter, mass flow rate of the exhaust gas, condition of the filter as well as the engine operation condition. Moreover, there is



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nothing in the record which establishes that the claimed time period parameters present a novel or unexpected result (See *In re Kuhle*, 562 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

***Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota in view of Lundquist (US Patent 6,152,978) as applied to claim 2 above, in view of design choice.***

Hirota discloses all the claimed limitations as discussed in claim 2 above; however, fails to disclose said stainless steel fiber web having fiber diameter of about 22 micrometers.

Regarding to the diameter of the fiber web of about 22 micrometers would have been an obvious matter of design choice well within the level of ordinary skill in the art, depending on variables such as material of the filter, mass flow rate of the exhaust gas, condition of the filter as well as the engine operation condition. Moreover, there is nothing in the record which establishes that the claimed time period parameters present a novel or unexpected result (See *In re Kuhle*, 562 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

### ***Response to Arguments***

Applicant's arguments filed on 6/11/03 have been fully considered but they are moot in view of a new ground(s) of rejection.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### **Conclusion**

Any inquiry concerning this communication from the examiner should be directed to Examiner Diem Tran whose telephone number is (703) 308-6073. The examiner can normally be reached on Monday -Friday from 8:30 a.m.- 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (703) 308-2623. The fax number for this group is (703) 872-9302. For After Final communication, the fax number is (703) 872-9303.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is

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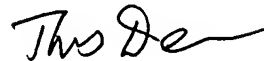
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(703) 308-0861.

DT  
August 18, 2003



Diem Tran  
Patent Examiner  
Art unit 3748



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